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Science in Farming

The Yearbook of Agriculture 1943-1947, entitled Science in Farming, is the first Yearbook the Department of Agriculture has issued since 1942, when the war interrupted a sequence that goes back nearly 100 years.

The new Yearbook summarizes some of the more important developments in agricultural research of the past few years, especially the war period, when the publication of scientific findings often was difficult.

The purpose, as set forth in the editor's preface, is to give "practical information about research of the past few years pertaining to animals, plants, insects, trees, soils, water, machines, conservation, processes, marketing, industrial uses of farm products, agricultural chemistry, food, clothing, and economics. It offers a background for understanding the further results of research as they are announced from day to day. Its purpose is to help everybody to make the most of the products of the laboratory, the test plot, and the pilot plant. It is not a general or complete treatise on agriculture -- a large library is needed these days to embrace all the details of the profession of farming. This book was prepared primarily for farmers, but we have always had in mind other persons whose interests and work have to do with gardening, chemistry, beekeeping, stock raising, conservation, horticulture, and such. The Yearbook should be particularly useful to returning servicemen who want to farm and to persons who will find in these pages details of a product that may help them build or enlarge businesses of their own."

Science in Farming contains 960 pages of text material and 136 pages of pictures that illustrate many phases of the research.

There are 135 articles, by 158 persons employed in the Department of Agriculture and other scientific institutions in different parts of the United States. There are ten main sections: Backgrounds, animals, plants, forests, soils, insects, new products, food and clothing, new practices, and conclusions.

Twenty-three articles deal with various phases of the new knowledge about the breeding of dairy and beef cattle, animal diseases, artificial breeding, feeding of cattle and calves, cross-breeding, hogs, sheep, goats, poultry, horses, and mules. Six articles concern plant genetics, plant growth regulators, photoperiodism, plant hormones, hydroponics, and developments in gardening; 24 others discuss new varieties of plants, among them strawberries, blueberries, peaches, citrus fruit, tomatoes, onions, potatoes, beans, soybeans, sorgo, sugarcane, sugar beets, tobacco, cotton, rice, wheat, flax, corn, oats, barley, sorghum, clover, grasses, alfalfa, other legumes. Two papers consider a few aspects of plant diseases. Among the articles on trees and the use of wood are ones on farm forests, hybrid forest trees, forests on old fields, tree diseases, forest planting, prefabrication, fungi in wood, and new products from wood. A need for conservation and good use of the land is expressed or implied throughout the volume. Sixteen articles tell about the relations of soil and nutrition, soil organic matter, soil organisms and disease, rotations in conservation, stubble mulching and related aspects of tillage, managing surface runoff, farm waterways, salinity, fertilizers, lime, minor elements in soils, and irrigation.

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DDT is the outstanding news about insects. A number of authors discuss DDT to control pests in the home, its chemistry, the control of forage pests, insecticides to protect vegetables, controlling livestock pests and forage pests, insects that attack man, aerosols, plants that resist insect pests, insect repellents, and so on. There are two papers on the health, care, and production of bees and one on an antibiotic associated with American foulbrood, a disease that affects bees. Nine articles on new products treat of various new uses for farm waste, penicillin, rutin, dairy byproducts, vegetable meals, starch, and paper. The section on food and clothing includes nine contributions on American diets, protein, the nutrients in milk, canning, drying, and freezing foods, work clothing for women, and mildew in fabrics. Twenty-two papers deal with farm engineering, machines, and other aspects of efficient farm work, including ways to simplify farm operations, machines for sweetpotatoes, insecticides, storage, sugar-beet machinery, rodent control, planning farm returns, and a brief look at new trends in marketing.

Sherman E. Johnson, assistant chief of the Bureau of Agricultural Economics, and W. V. Lambert, head of the Agricultural Research Administration and chairman of the technical committee that planned the Yearbook, write on the possible effects and problems of research.

Dr. Johnson writes, in part:

"The effects of technology on farm people may be both good and bad. Those who can take advantage of the new techniques are likely to increase their net incomes a great deal. On the other hand, those who cannot adapt their operations to the new conditions may find themselves at a relative disadvantage. And workers who are displaced may suffer hardships unless other employment is readily available. Those growing pains of technological progress can be softened. Special educational and other programs can be provided for those who are disadvantaged by technological changes. Progress in farm technology can result in net social gain, but this is a potentiality and not an inevitable consequence. Farm people will need to learn how to live with the new techniques, and to use them to their advantage. To attempt to stop, or even to slow down, the tide of progress would be too costly to farmers over a period of years.

"If farming, as well as other sectors of our economy, is rapidly adjusted to the technical improvements that become available it will be possible to produce more with less effort. More time will be available for other things including education, recreation, and increased leisure. And the real incomes per farm and per family will be larger."

Dr. Lambert sounds a warning note:

"The great strides that have been made in agricultural research in a few years are truly impressive...I look forward with serious concern, born of the knowledge that we must keep everlastingly on the job if we are to meet the challenges of the future."

A great deal remains to be learned about livestock diseases, the productivity of cattle, the resistance of plants to diseases, and insecticides, Dr. Lambert writes, and:

"As we look ahead, we may be led to ask ourselves if the research developments of the past are less wonderful than they have been portrayed. I do not believe they are. But we must remember that agricultural research is not a static thing. Many of the problems of farm production are so intimately bound together that when one factor is changed, the whole system may be changed. Limiting factors under one system of farming may be eliminated, but new limiting factors may develop as the result of a new discovery. In a dynamic, rapidly changing world, all elements, man-made and natural, must be considered.

"The broad scope of research developments during the war show the enormous complexity and magnitude of the tasks assigned to agricultural research. The multiplicity of conditions under which plants and animals are grown, changes in economic conditions, the wear and tear on the soil from continued cropping, and the biological changes continually occurring in plants and animals and their parasites make this a never-ending task."

Secretary of Agriculture Clinton P. Anderson contributes a foreword, in which he writes:

"I have great joy of them (scientific advances in farming) as a fruit of man's brain and hand, of his patient research, ingenuity, will. These developments the American farmer combined with his sweat and skill to perform the miracle of food production during the war. They have had a part in increasing by 70 percent in 25 years the average efficiency of the farm worker in the United States. They reveal the possibility of a self-sustaining American agriculture, and are a manifestation of the resources within us and about us. They can give us a better life, a life more abundant for every family."

The Yearbook is a Congressional document, produced in the Department of Agriculture -- as required by a law of long standing -- under an appropriation made specifically by Congress.

Distribution of the Yearbook is mainly by members of Congress. Each member has a certain number of copies for free distribution among farmers, libraries, colleges, businessmen, and other persons and institutions. About 230,000 copies of the Yearbook are printed. The Superintendent of Documents, Government Printing Office, Washington 25, D. C., has copies for sale at \$2.00 each.

Aside from the part of Congress as parent, so to speak, of all the Yearbooks, Science in Farming points out in several instances the role of Congress in agricultural research.

For example, Charles E. Kellogg, chief of the Division of Soil Survey in the Bureau of Plant Industry, Soils, and Agricultural Engineering, says, in an article, What Is Farm Research?:

"The people, through their representatives in State legislatures and the Congress, strongly influence the relative emphasis given the individual lines of research through the distribution of appropriations. Sometimes, items of popular interest receive undue emphasis at the expense of more important fundamental research, but, on the whole, the agricultural research program has benefited from this procedure; it has been forced to keep close to the real problems of the people. At least once a year in formal budget hearings, and much oftener in letters, in interviews, and other contacts, men responsible for various lines of work give congressional committees an accounting of their stewardship, explain

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the degree of progress, propose new projects. They have a sympathetic, thorough, and strict audience; each respects the responsible role of the other, and out of the exchange comes a wholesome contribution to the national well-being. Thus Congress has a sentient, important role in our research program, more vital and productive, perhaps, than many Americans realize. Excellent teamwork between scientists and legislators is becoming increasingly important."

Members of the technical committee that did the preliminary planning of this Yearbook are:

W. V. Lambert, Agricultural Research Administration, Chairman
Hugh C. McPhee, Bureau of Animal Industry
O. E. Reed, Bureau of Dairy Industry
Carl F. Speh, Bureau of Agricultural and Industrial Chemistry
F. C. Bishopp, Bureau of Entomology and Plant Quarantine
M. A. McCall, Bureau of Plant Industry, Soils, and Agricultural Engineering
C. M. Coons, Bureau of Human Nutrition and Home Economics
Sherman E. Johnson, Bureau of Agricultural Economics
Ernest G. Moore, Agricultural Research Administration
W. H. Larrimer, Forest Service
Mark L. Nichols, Soil Conservation Service

The editor of the Yearbook is Alfred Stefferud, who was born and reared in Kenyon, Minnesota, and is a graduate of St. Olaf College, Northfield, Minnesota. After graduate work at the University of Iowa, he worked for the Associated Press in Des Moines, New York, Berlin, and Vienna; for Time magazine in New York; for the Office of War Information in New York, London, and Washington, and the Bureau of Agricultural Economics and the Office of Information in the Department of Agriculture.

In the editorship of the Yearbook he succeeded Gove Hambidge, who started what is sometimes called the "new" series of Yearbooks, each one of which is devoted to a single, broad, significant segment of agriculture. The series includes: Better Plants and Animals, Vol. I (1936); Better Plants and Animals, Vol. II (1937); Soils and Men (1938); Food and Life (1939); Farmers in a Changing World (1940); Climate and Man (1941); Keeping Livestock Healthy (1942). The Yearbooks of 1901, 1904, 1906, 1911, 1938, and 1939 are out of print but copies for any other year from 1894 to 1942 are for sale by the Superintendent of Documents.

An example of the place the whole series has come to have among students and historians of American agriculture is given by a mischance in 1929. No Yearbook bears that date, because editors then were a year behind in their work. Consequently, they skipped a year, and designated the next one as the Yearbook of 1930 and announced the fact. Still, however, the Department gets requests frequently for the non-existent 1929 volume. To avoid a duplication of that episode, the current Yearbook includes 1943-1947 in its title, although it is not limited to developments during those years.

The first Yearbook of Agriculture to bear that designation was issued under an Act approved January 12, 1895, that provided for the public printing and binding and the distribution of public documents. It contained 608 pages and was divided into three sections: The Report of Secretary of Agriculture J. Sterling Morton for 1894; a series of articles by bureau chiefs and their assistants about the work they were doing; and a 65-page appendix of agricultural statistics. The general articles that year included such subjects as Federal meat inspection, meteorology, soils, fertilizers, crow blackbirds and their food, insects of the orchard and of stored grain, dairying and dairy products, food and diets, pure seed, bovine tuberculosis, forestry, and farm roads. The report was addressed to the President of the United States.

But the annual reports on American agriculture go back much farther. From 1837 to 1861, when agricultural research was under the Patent Office, the yearly reports of the Commissioner of Patents devoted anywhere from two pages to several hundred pages each year to the problems of farmers and what had been accomplished toward solving them. Not until 1862, when the Department of Agriculture was established as a separate organization, was a report devoted solely to agricultural activities of the past year. This first report, 632 pages long, was signed by Isaac Newton as Commissioner of Agriculture and was called the Agricultural Report. It contains no table of contents but some of the chapter headings are: The Wheat Plant; Imphee and Sorghum Culture, etc.; Wild Flowers; Apples and Pears; Remarks on the Horse; Entomology; Farm Implements and Machinery; Health of Farm Families; and the Agriculture of Morocco.

Work on Science in Farming actually started July 1, 1946, the beginning of the Government's fiscal year, although several months of planning preceded that. Thus, the planning and production of the volume were done in a time of uncertain supplies of materials and rising costs. This is reflected in the size of the book which is several hundred pages thinner than some of its predecessors, and the need, as pointed out in the editor's preface, to omit a number of articles that had been scheduled for publication.

Many persons participate in putting out the Yearbook. Before the subject of the book is chosen, the major problems, interests, and work of the Department, farmers, and other farm workers are taken into account. The importance of a proposed subject to farmers and the general population, the number of persons who want information on it, and the availability of material and contributors are factors that bear on the selection of the topic. Subsequently, to do the preliminary planning and act as technical consultants, the Secretary of Agriculture names the Yearbook Committee, whose members represent the sections of the Department that have an interest in the subject. Invitations to contribute articles on their specialized fields are then sent to persons in the Department, experiment stations, agricultural colleges, and elsewhere.

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